

Tire Pressure Monitoring System (TPMS) FMVSS No. 138

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Introduction

- Provide an update of the Tire Pressure Monitoring System (TPMS) rulemaking in the Office of Crash Avoidance Standards, NHTSA
- Three main areas of discussion:
 - 1) TPMS Phase I – Final Rule
 - 2) TPMS Petitions for Reconsideration
 - 3) TPMS Phase II – Final Rule

Tire Pressure Monitoring System



Tire Pressure Monitoring System (TPMS) Rulemaking

- TPMS Rulemaking was mandated by the Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act of 2000, Section 13
- Final Rule for Federal Motor Vehicle Safety Standard (FMVSS) No. 138, Tire pressure monitoring systems, was published in the Federal Register on June 5, 2002

Underinflated Tires



Pictures of Underinflated Tires: Background

- A car and a mounted tire (on driver's side, front) with an initial cold inflation pressure of 32 psi
- The tire pressure was decreased in 10% increments from 100% to 10% (or, from 32.0 psi to 3.2 psi)

Pictures of Underinflated Tires: Inflation Increments

- 100% = 32.0 psi
- 90% = 28.8 psi
- 80% = 25.6 psi
- 70% = 22.4 psi
- 60% = 19.2 psi
- 50% = 16.0 psi
- 40% = 12.8 psi
- 30% = 9.6 psi
- 20% = 6.4 psi
- 10% = 3.2 psi

100% Inflation



90% Inflation



80% Inflation



70% Inflation



60% Inflation



50% Inflation



40% Inflation



30% Inflation



20% Inflation



10% Inflation



100% vs. 40%!



Conclusions From Pictures

- Difficult to visually determine level of under-inflation
- Highlights the need for TPMS
- 70% (activation level for TPMS) looks like 100%

Summary of FMVSS No. 138

- Final Rule - Phase I has a compliance date of November 1, 2003
- Final Rule Phase I is applicable to 2-axle, 4-wheel motor vehicles under 10,000 lbs GVWR
- Does not apply to:
 - Vehicles with dual wheels on an axle
 - Trailers
 - Motorcycles

Summary of FMVSS No.138 - Continued

Final Rule - Phase I:

- Requires the TPMS telltale, mounted in the vehicle's instrument panel, to be illuminated within 10 minutes after the inflation pressure falls below the acceptable level
- Permits the use of the following:
 - a) Direct systems
 - b) Indirect systems
- Performance options allowed:
 - 1) 4 tires @ 25% underinflation
 - 2) 1 tire @ 30% underinflation

Summary of FMVSS No.138 - Continued

Final Rule – Phase II:

- Conduct TPMS effectiveness survey (Direct/Indirect TPMS vs. without TPMS)
- Based on survey results, determine whether TPMS Phase I requirements should be revised
- Publish Final Rule - Phase II by March 2005
- Effective date for Final Rule - Phase II is November 1, 2006

Petitions for Reconsideration of TPMS Final Rule



- Petitions for Reconsideration are filed with the agency when an organization or individual disagrees with contents of a final rule
- The agency received 13 Petitions in response to FMVSS No. 138, final rule from automobile manufacturers, manufacturers' suppliers, tire manufacturers, and TPMS developers

Major Concerns Expressed in TPMS Petitions

- Two Major Issues:
 - 1) Compliance Testing with Replacement Tires
 - 2) Compliance Testing to Detect Low Tire Pressure

Compliance Testing With Replacement Tires

- Final Rule text: A vehicle will be tested for TPMS compliance with any tire of a size recommended for the vehicle by the manufacturer
- Issue: For some vehicles, there are potentially several hundred tires that are candidates for TPMS compliance testing

Compliance Testing to Detect Low Tire Pressure

- **Final Rule Text:** After deflation of tire(s) to a level that should illuminate the TPMS telltale, the vehicle is driven at any speed between 50 km/h (31.1 mph) and 100 km/h (62.2 mph). The telltale must illuminate not more than 10 minutes after the vehicle reaches a speed of 50 km/h(31.1 mph)
- **Issue:** According to petitioners, the final rule does not provide sufficient details about the vehicle driving conditions during compliance testing for TPMS telltale illumination

Summary: Next Steps

- NHTSA will provide, in the Federal Register, a response to the TPMS “Petitions for Reconsideration” by late Summer 2003
- TPMS Field Survey and Analysis to be completed by March 2004
- Phase II - Final Rule:
 - Publish by March 2005
 - Effective Date: November 1, 2006